Attachment A
Cost Benefit Analysis
VCU Administrative Systems Replacement

1. Alternatives Considered

VCU intends to replace the current multiple, non-integrated administrative systems with a modern set of applications. Four alternative approaches were considered in addition to not proceeding with system replacement at this time.

Alternative	Reason for Rejection
1. Remain with current system	Rising support costs, obsolete technology and end of vendor support makes this option impractical in the long term. In the future, an emergency replacement of the systems would be more expensive, with greater risk and a lower chance of success.
2. Develop a custom system with in-house resources.	This is a non-standard approach to ERP systems implementation. VCU does not have the expertise with modern development tools to build a system of this scope and complexity. This approach has a high level of risk and the likelihood of higher operating costs to maintain on an on-going basis.
3. "Best-of-breed" replacement of each component.	This is a non-standard approach to ERP systems implementation. The advantages of an integrated system with a common database, one set of support tools and utilities and management of a single vs. multiple vendors would be lost. This approach would entail higher risks, greater implementation costs and the likelihood of higher operating costs to maintain on an on-going basis.
4. Evaluate all major ERP vendors (full RFP process with a baseline assessment of needs and products)	The time (12-18 months) and cost ($500,000 - $750,000) of a full RFP process and the estimated cost of an alternative non-SCT ERP system (typically $15 - $20 million for an institution the size and complexity of VCU) makes this an impractical option.
5. Implement SCT Banner	Selected alternative. SCT is a top vendor in the higher education ERP market. It is the de facto standard for Virginia higher education allowing opportunities for collaboration with other institutions. The implementation costs of this option ere estimated to be lowest of all alternatives helped by a statewide master contract with SCT.

2. Benefits

VCU anticipates the benefits of this project to be realized in three major areas:

- Services to constituents (students, faculty and staff) will be enhanced through an expanded use of web-based activities, integration and interoperability with other user applications such as the course management system and single sign-on capabilities. Users will be able to conduct routine business activities anytime and anywhere via the internet. It is expected that the time a typical user spends conducting routine business functions with university offices with be significantly reduced with this system.
- Back office business processes will be simplified and improved with the SCT Banner system primarily through the use of electronic workflow. Manual operations and

paperwork will be reduced. Although Banner will replace many of the custom-develop, point solutions already in place (e.g., the University's web-based ***eServices@VCU***), it is expected that 35 of 94 key administrative process will have new or significantly improved electronic capabilities under the new system (see Attachment B).

- Ongoing operational costs for the systems infrastructure and back office business operations are expected to be reduced under the new system allowing current resources to be reallocated to more value-added activities and user services. In the IT area, UNIX/Oracle platforms and applications are much less expensive to support than our highly customized, mainframe systems. Freed resources will be used for user support and development activities. With business operations, the reduction in paperwork and manual operations will allow staff to be reassigned to more service-oriented, value-added activities.

Calculation of Tangible Benefits

Tangible benefits are expected to accrue in four areas:

1. Cost avoidance for required mainframe upgrade. VCU will be required to replace its mainframe hardware in 2007 if we remain with our current applications. IBM no longer markets a 64-bit processor mainframe similar in size or power to VCU's existing platform that runs the supported operating system, zOS. This will require VCU to step up to a more expensive category of 128-bit processor. The cost of this replacement is estimated be:

Hardware	$1,000,000
IBM Professional services (1)	350,000
Hardware maintenance costs for a larger processor (2)	2,200,000
Additional licensing costs for larger processor (3)	210,000
Total	$3,760,000

(1) Estimated by using the professional services costs associated with VCU's upgrades in 1995 and 2001 multiplied by the inflation factor of 4% per year.
(2) The associated hardware maintenance costs will increase with a new processor. This estimate based on a purchase cost of $1,000,000 and a 20% annual maintenance rate that would begin in the fourth year of the ten-year analysis period at the time when the current mainframe must be replaced.
(3) This resulting platform upgrade will increase software licensing costs for associated mainframe software. We estimate that increase to be 20% above current costs, and would begin in the fourth year of the ten-year analysis period at the time when the current mainframe must be replaced.

Total benefit over 10 years: $3,760,000

2. Cost avoidance of current platform support personnel. The UNIX/Oracle platform and delivered SCT application require fewer staff to support the infrastructure than VCU's current mainframe and highly customized CICS/Cobol applications. It is estimated that the annual support costs of the new platform/applications will be reduced by $500,000 (18%) yielding a

cost avoidance of $5 million over the ten-year analysis period. These savings will be reallocated to development and user support functions.

Total benefit over 10 years:	$5,000,000

3. Cost savings through improvements in business processes. The web services and electronic workflow capabilities of SCT Banner will support re-engineering efforts and business process improvements. The reduction in paperwork and manual processing will result in cost savings for back office functions (fewer staff needed to support operations). Improvements are expected in a number of key business functions. We expect that SCT Banner will provide new or significantly improved electronic workflow capabilities to 35 of 94 key business processes (see Attachment B). Improvements/efficiencies also include staff costs associated with verifying data exchanges and batch total, resolving data disparity problems, re-entering data into shadow systems. Additional savings are expected in printers and supplies and the delivery and processing of paper reports.

Workflow improvements (4 FTE * $40,000 avg. S&B * 10 years)	$1,600,000
Data integration improvements (2.5 FTE * $40,000 avg. S&B * 10 years	$1,000,000
Reduced printing & distribution costs ($25,000/year * 10 years)	250,000
Total benefits over 10 years:	$2,850,000

4. Procurement savings through direct access to eVA. With its current purchasing system, VCU cannot take full advantage of the discounts and processing efficiencies available through eVA, the Commonwealth's electronic procurement system. The Department of General Services estimates savings of up to 3.5% of an institution's procurement "spend" through he use of eVA. Real-time interoperability through SCT Banner will allow VCU to leverage its decentralized purchasing process with the processing efficiencies and discounts through eVA. We are conservatively estimating our net savings at 1% of our annual $55 million spend.

Total benefits over 10 years ($55 million * 1% * 10 years):	$5,500,000

Total Tangible Benefits:

Cost avoidance from mainframe upgrade	$3,760,000
Cost avoidance of mainframe system support	5,000,000
Cost savings from business process efficiencies	2,850,000
Procurement savings	5,500,000
TOTAL	$17,110,000

Calculation of Intangible Benefits

With its electronic workflow capabilities and web services, SCT Banner will offer significant advantages over current business processes. Using web services, constituents will be able to conduct routine business activities with University offices at times and places that are convenient to the user. Without having to contact an office in person or by phone, fill out paper forms and wait for responses/actions, the time spend on routine day-to-day business transactions will be significantly reduced. (The staff currently devoted to supporting the routine business functions can be reassigned to more value-added and customer service tasks.) We are estimating that constituents will save an average of four hours annually through the improvement of existing and addition of new web-based business processes. At an assigned value of $10 per hour, annual intangible benefits total $1,440,000 for the 36,000 VCU students, faculty and staff or $14,400,000 over the 10-year analysis period.

4 hours * $10/ hour * 36,000 constituents * 10 years = $14,400,000

Total Intangible Benefits	$14,400,000

3. Return on Investment Calculations

ROI = (Benefits – Cost) / Cost * 100

Based on Tangible and Intangible Benefits

= (($17,110,000 + $14,400,000) - $11,357,000) / $11,357,000 * 100
= 177%

Based on Tangible Benefits Only

= ($17,110,000 - $11,357,000) / $11,357,000 * 100
= 51%

Net Present Value of Costs and Tangible Benefits

Assumptions:
Rate = 4%
Costs occur in years 1 – 4
Benefits accrue equally in years 3 – 12

NPV of costs = $10, 179,000
NPV of tangible benefits = $ 14,792,000

ROI = ($14,989,000 - $10,179,000) / $10,179,000 * 100
= 47%